filtered input data upsampled by a factor of two. In other embodiments units 13 and 15 provide interpolated data, that is upsampled or downsampled by the desired sampling factor, to delay network 20 which may employ transfer functions that are either the same, or different, as desired.

The data from unit 13 of interpolation network 10 is provided to multiplexer 33 via both delays 24 and 26 and to multiplexer 27 via delay 24 and also to multiplexers 29 and 31. The data from unit 15 of interpolation network 10 is provided to multiplexers 31 and 33 via delay 22 and to multiplexers 27 and 29. In this configuration, units 22, 24 and 26 of network 20 comprise multiple tapped delay lines providing outputs of delayed upsampled interpolated data samples of higher resolution than the sample spacing of the input data from unit 17. Multiplexers 27, 29, 31 and 33 multiplex the inputs received from units 10, 22, 24 and 26 to provide a selected set (selected from between two available sets) of upsampled delayed samples to digital filter 40.

Multiplexers 27, 29, 31 and 33 multiplex between the two sets of upsampled delayed inputs from units 10, 22, 24 and 26 in response to a position representative selection signal identifying the upsampled delayed output sample set spatially encompassing (i.e. straddling) the corresponding position of the converter output sample whose value is currently being determined by the converter of Figure 1. Specifically, this selection signal identifies and selects the set of four upsampled delayed output samples comprising the two upsampled delayed output samples located either side of the corresponding output sample being determined by the Figure 1 converter system. In the configuration of Figure 1, the selection signal input to multiplexers 27, 29, 31 and 33 comprises the MSB (most significant bit) of a position index signal used by filter 40 to spatially interpolate between two input samples being processed.

The set of four upsampled delayed output samples provided by network 20 to digital filter 40 consist of multiple $\frac{T}{n}$ spaced delay line outputs (taps) comprising higher resolution second sample spacing data surrounding the output sample time desired (where T is the period between samples of the input sample data from unit 17 and n is 2 in the architecture of Figure 1).

Other architectures with other values of n may be derived by replacing an isolated tapped delay line with the advantageous generalized delay line arrangement in accordance with the invention principles. For example, in the arrangement of Figure 5 (discussed later), the generalized delay line of Figure 1 is extrapolated to provide n=3. Further, the use of the generalized delay line configuration of Figure 1 facilitates the processing of the input sample data at a single

filtered input data upsampled by a factor of two. In other embodiments units 13 and 15 provide interpolated data, that is upsampled or downsampled by the desired sampling factor, to delay network 20 which may employ transfer functions that are either the same, or different, as desired.

The data from unit 13 of interpolation network 10 is provided to multiplexer 33 via both delays 24 and 26 and to multiplexer 27 [via delay 24] and also to multiplexers 29 and 31 via delays 24 and 26. The data from unit 15 of interpolation network 10 is provided to multiplexers 31 and 33 via delay 22 and to multiplexers 27 and 29. In this configuration, units 22, 24 and 26 of network 20 comprise multiple tapped delay lines providing outputs of delayed upsampled interpolated data samples of higher resolution than the sample spacing of the input data from unit 17. Multiplexers 27, 29, 31 and 33 multiplex the inputs received from units 10, 22, 24 and 26 to provide a selected set (selected from between two available sets) of upsampled delayed samples to digital filter 40.

Multiplexers 27, 29, 31 and 33 multiplex between the two sets of upsampled delayed inputs from units 10, 22, 24 and 26 in response to a position representative selection signal identifying the upsampled delayed output sample set spatially encompassing (i.e. straddling) the corresponding position of the converter output sample whose value is currently being determined by the sample rate converter system of Figure 1. Specifically, this selection signal identifies and selects the set of four upsampled delayed output samples comprising the two upsampled delayed output samples located either side of the corresponding output sample being determined by the Figure 1 converter system. In the configuration of Figure 1, the selection signal input to multiplexers 27, 29, 31 and 33 comprises the MSB (most significant bit) of a position index signal used by filter 40 to spatially interpolate between two input samples being processed.

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